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Volume 2, Number 3 **March 18, 1994**

Spring Runoff To Lakes Beginning

St. Clair, Erie, Ontario Lower Than 1993

Lakes St. Clair, Erie and Ontario began March at levels well below those of the same time last year, while Lakes Superior and Huron were only slightly above their levels of a year earlier.

This indicates that as the season for spring runoff arrives,the lower lakes should be able to absorb additional water supplies without rising to critical levels. However, unusually heavy ice this year could complicate conditions

Lakes Huron, St. Clair and Erie began the month between 24 and 28 cm above their averages for the time of year. Lakes Superior and Ontario were near their long-term averages.

Once the ice cover disappears from the lakes in the spring, they become susceptible to storm surges. These surges, also known as wind set-up, have been known to raise Lake Erie's level by as much as 2.5 metres at the eastern end while causing it to drop by a corresponding amount at the western end.

Storm surges can occur regardless of the lake's still water level. However, the higher the still level and the higher the storm surge, the greater the risk of flooding and increased erosion.

A storm surge develops like this: Winds blowing across a lake surface for a number of hours can push the water up at the downwind side of the lake, while dragging the level down at the upwind side. If effect, the lake's surface is tilted.

When the wind subsides, the water will find its equilibrium again, but not before rising and falling for some time at opposite sides of the lake. This effect is known as seiche. You can visualize both these effects if you imagine tilting a bowl of water. The resulting rise in the water level on one side and drop on the other is similar to the effect of a storm surge. When you return the bowl to its original position, the water will move back and forth before settling back to its equilibrium. This effect is similar to seiche.

Generally, the longer the fetch (the length of open water exposed to the wind), the stronger the wind, and the shallower the lake, the higher the storm surge will be. The effects experienced at any particular site on a lake will depend upon the physical features of that site and its location in relation to the wind direction.

Lakes Erie and St. Clair, the shallowest of the lakes in the Great Lakes system, are the most susceptible to storm surges. Southern Lake Huron and Georgian Bay have also experienced storm surges. Significant surges are less common on Lakes Superior and Ontario, which are the deepest of the lakes.

Analysis of years of water level records at particular sites can help engineers predict the chances of a specific site having a storm surge equal to or higher than a particular level. This can help shoreline property owners judge whether they should take protective measures in advance of the storm season.

If you have shoreline property and are interested in estimating the potential for storm surge in your area, please contact the Great Lakes Water Level Communications Centre. You can find out if your property is located on a flood plain by contacting your local conservation authority.

Cold Winter Brings Heavy Ice To Lakes... Ice Jams Possible In Some Locations

Unusually cold temperatures this winter led to near record ice conditions on the Great Lakes. All the lakes with the exception of Ontario and Michigan, were almost completely ice covered at some point between December and February. By mid-February even Lake Ontario was showing signs of freezing over. This hasn't happened since 1979.

However, with the return of milder temperatures toward the end of February and beginning of March, the ice began to melt, as it usually does this time of year.

The freeze up came a few days later than expected to the Great Lakes and allowed a few extra shipping days to commercial vessels transiting Seaway locks in the St. Lawrence River, before the Seaway closed for the winter.

When the freeze did come, ice formed quickly. Abnormally thick ice conditions restricted outflows in the St. Lawrence River. However, the restrictions were not severe enough to cause serious problems for regulation of Lake Ontario's outflows.

Warmer temperatures allowed ice to begin decaying by early March, as usual. However, forecasters at Environment Canada's Ice Centre in Ottawa had earlier noted that the ice could remain two to three weeks longer this year due to its extent and thickness.

The heavy ice could pose some problems during the spring thaw. Ice jams are possible, particularly in the St. Clair River, where ice running down the river from Lake Huron could impede the flow of water and cause localized flooding. There is also a possibility of ice jamming in the St. Lawrence River downstream of Montréal.

Heavy lake ice can also impede the flows of some tributaries to the Great Lakes during the spring runoff by blocking their flow into the lakes. This can cause flooding upstream on the river.

Lake ice can be both an advantage and a disadvantage for shoreline areas. The shore fast ice that typically forms along the shoreline during the winter can serve as a protective barrier against waves and large pieces of ice during stormy weather. When this ice breaks up in the spring, loose pieces can be

pushed against the shore, either by high winds or the general daily movement of ice on the lake. This can damage boathouses, docks, cottages and other shoreline structures.

Public Invited

To a Meeting, with the Public, of the International Niagara Board of Control

Wednesday, March 23, 1994
7:30 p.m.
Days Inn, 201 Rainbow Boulevard
Niagara Falls, New York

The Interational Niagara Board of Control is a binational organization reporting to and advising the International Joint Commission on matters regarding water levels, flows and similar subjects pertaining to the Niagara River.

The purpose of this meeting is to inform the public of the Board's current activities and to hear public comments and suggestions regarding the Board's work.